THE

VETERINARY JOURNAL

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THE LATE CAPT. HARRY CHOWNE, R.A.V.C.

CAPT. CHOWNE was killed on September 26 last, together with Mr. McNeill of the Sudan Civil Service, and three Civil employees, as the result of a native rising against the British Garrison in the Sudan, at Nyala, Southern Darfour. Born at Mapledurham, near Reading, the deceased officer was only 30 years of age. Graduating at the Royal Veterinary College, Camden Town, in December, 1914, he at once took a commission in the Special Reserve and was granted a regular commission as Captain in September, 1915.

Serving in various capacities during the Great War he will probably be best remembered by old friends as the popular commanding officer of the 48th Mobile Veterinary Section of the Ulster Division, with whom he remained until September, 1918, when he was seconded for service with the Egyptian Army. At the time of his death he was the District Inspecting Veterinary Officer for Southern Darfour. His war record included a " mention in despatches," the 1914-15 Star and the Allied and Victory Medals.

Editorials.

MISERABLE SALARIES! THE EXAMPLE OF OUR COLLEAGUES IN THE HUMAN MEDICAL PROFESSION AND A COMPARISON.

THE sarcasm expressed by Lord Lambourne in an article written for *The Nineteenth Century* for the salaries offered to (and, unfortunately, accepted by) members of the veterinary profession for a whole-time position might well be taken to heart at the present time when the cost of living is so high and house rent so exorbitant. The distinguished writer, who is well known as a friend to any object which checks cruelty to animals, alludes to the "princely salary of £300 a year" offered by the Ministry of Agriculture to properly qualified and experienced members of the Royal College of Veterinary Surgeons selected as Port Veterinary Inspectors, and states significantly, "because of this parsimony they have to be pensioned professional gentlemen," a fact, unfortunately, too true unless their whole existence is to be a constant struggle to maintain even a genteel poverty. And in order to demonstrate that this parsimony is not necessary from the taxpayer's standpoint he quotes that questions and answers in the House of Commons had elicited "that the fees for examining horses for export in 1920 brought in a total sum of £14,594, whilst the cost of these examinations had only amounted to £4,006. This shows a clear gain to the Government of over £10,500. One would like to know what became of this balance! Surely the labourer is worthy of his hire, and, if the Minister has any faith in his reformative measures, I would beg that more adequate salaries be given to avoid the temptations which, alas, seem inevitable where the buying and selling of horses are concerned." Comment on the above seems superfluous; it is the spontaneous outburst of a distinguished layman who is well disposed towards our profession and who understands full well the potentialities of its mission as *the* profession which teaches and practices the healing art and the application of methods of alleviating pain in dumb animals; creatures whose very helplessness to do such things for themselves ennobles our profession and makes our life's study a truly high and merciful calling. He recognises that to offer a miserable £300 a year as the whole-time salary for a professional man, who has spent at least £1,000 on his professional education, and to expect him to keep up a social status which shall be a credit to his profession, is "parsimony," and he is justified in sarcastically alluding to it as "princely."

One wonders what he would say if he was a regular reader of the advertisement columns of our veterinary periodicals and saw that the

same Ministry of Agriculture offered for competition whole-time Government billets for duly qualified veterinary surgeons at £200 a year; or indeed, again, that another institution advertises for a Demonstrator, who presumably must be a duly qualified graduate, possessed of more than usual ability in order that he may shine as an example to the students whose classes he will control, for £150 per annum. On this he is expected to keep himself, wear a black coat and other external signs of professional respectability, live in a respectable neighbourhood, and generally comport himself as a selected specialist should. The road sweeper of some of the Borough Counuils is better off, for he, at all events, claims his £4 a week and only works 48 hours a week for it, Saturday afternoon and Sunday being playtime. That men can be found eager and willing to take such pittances shows quite clearly that there is something wrong with the internal organisation of our profession. *In fact, it points to the absence of organisation.* and we might well take a leaf out of the book of our medical *confrêres.* Recently, the position of Medical Officer of Health for Stirling, a whole-time job, fell vacant, and the town council suggested a salary of £600 a year, which a higher authority under the Board of Health whittled down to £500. However, the British Medical Association, which can probably now be likened to one of the most powerful Trade Unions in the world (and whose example our National Veterinary Association might do worse than copy in many things) have already decided that no whole-time appointment of this magnitude and responsibility should be taken under a minimum salary to commence with of £700 a year. The consequence is that the appointment is boycotted by all the best and most intelligent, self-respecting, medical men; and, in instances in which a boycotted position has been filled by some second-rate individual, disloyal to the interests of his profession, those who had the giving of the appointment have been only too glad to yield and give the higher terms.

In the *British Medical Journal,* the official organ of the British Medical Association, there is published from time to time a black list under the following heading :—" Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.2." Then follows a list of doubtful appointments in Great Britain and the Colonies, and by this means the young graduate receives a measure of protection and the pecuniary and professional status is clearly defined, so that he has no need to put his head into a noose unwittingly.

Presently, when the National Veterinary Association gets well on its feet, it could do good work for its members, especially the younger

ones, by indicating the futility of becoming genteel slaves. *It is not necessary, and only needs combination to resist such insulting offers. We, as veterinarians, are absolutely an integral and essential factor for the health and wealth of agriculture (and this means the State), and we are essential to the Public Health.* Nothing can gainsay this; for if veterinary control was withdrawn our flocks and herds could not exist, and meat and milk for human food could not be relied on. Diseases of animals contagious to man would spread, and altogether, in a very short time, there would be chaos.

Why, then, submit to this social drudgery? We are a poor profession, and we shall always be so as long as we are disloyal to ourselves and submit to it. Let our National Council give a lead in the matter and our young and impecunious graduates will readily respond. The Councillor who introduces the subject and takes a firm stand in this matter will earn the gratitude, not only of the present graduates, but of all those who are to come. Money is by no means everything, but it buys so little at the present day that a man has to look about and find all he legitimately can of it; and although poverty may be no crime, when one has a position and a family to keep up it is apt to be, at times, a little inconvenient.

THE VALUE OF THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE ASSOCIATION.

The National Veterinary Benevolent and Mutual Defence Society still continues to do good work and every young graduate, in particular, should enter its portals. Apart from the Benevolent side of its nature, the Defence side should appeal to him very strongly, as the moral backing of such a powerful society would give him courage in fighting any legal action which a cantankerous or hysterical client might bring against him. To the older practitioner too it will always prove a comrade, for not only does a practitioner with an action hanging over his head get moral support, but he has only at any time to state his case in order to get the ripe and sound opinions of the Council, which consists of a number of practitioners of mature years, well acquainted with the wiles and malicious ways of litigious clients.

Several cases have been backed up in this way, morally and financially, lately, notably one in which a well-known veterinary surgeon was prosecuted by a widely-known Animal Society for alleged cruelty to a dog, by permitting lice (on the evidence of the prosecuting Society), to exist on its body whilst in his infirmary. According to the report given in the local press an attempt was made (on the word of a local chemist) to prove that these parasites caused it great pain. In fact the chemist, in his ignorance, poisoned it; and

another lay witness who exhumed the body some days after burial, had the audacity to state that from the vermin he found then he considered that the animal must have been in pain.

Needless to say, no veterinary evidence was given for the prosecutors, who lost the case, and were mulcted in costs, but the attempt to get a conviction had been made, and the fact that the National Veterinary Defence Society was behind our veterinary *confrère*, must have considerably eased his mind and proved a great moral force in assisting him to fight and win the unwarranted and stupid accusation made against him.

" FLY-STRUCK."

On a further page we publish a cutting from the daily Press which appears to indicate that the spread of trypanosomiasis is giving trouble in South Africa and can well understand the alarm felt by the farmers and settlers of Zululand at the increase amongst their stock of cases of this disease and the heavy death toll caused through the same. To judge from recent Press notices their difficulty has been represented to the Government of the Union of South Africa and they have formally laid before one of its Ministers a presentment of their case, asking for indemnification for past loss and pointing out that—in certain districts —farmers have been denuded of stock by the ravages of the disease to such an extent as to render future farming impossible and the surrender or sale of the farm inevitable. While sympathising with the troubles of the farmer the Minister is reported to have declined financial assistance but strongly to have advised the settlers not to sell or abandon their farms as "no parts of the Union had greater potentialities " than the unfortunate district in question. This official attitude reminds us of the attitude of the crowd collected to witness the burning of the heretic Jew, and who—fearing the recanting of the prisoner at the last moment and the consequent cancelling of the holiday spectacle—endeavoured to fortify the victim as he approached the scaffold with shouts of " Stand fast, Moses."

However this may be, the position of the settler who is unable to keep his stock alive is obviously an impossible one, and such an incident serves to remind us in a salutary manner both of the advantages of living in a well-settled country and of the struggle against adverse circumstances which our settlers and pioneers are called upon to face in the building up of our Empire. The phrase " fly-struck " may mean little to us, but to the pioneer settler, who is liable to find his favourite saddle-horse suddenly fail him, or whose only plough and transport

ox-team becomes threatened with rapid extinction—with all the tragic consequences which attend such a happening—the words " fly-struck " have an ominous significance.

As is well-known, the disease N'gana or Nagana is a deadly form of trypanosomiasis inoculated into animals by the Glossina morsitans or " Tse-tse fly." This fly becomes itself infected by sucking the blood of certain species of big game, such as the African buffalo, the bushbuck, koodoo, wildebeeste, and zebra, which animals form a natural reservoir for the disease by tolerating and maintaining in their blood the trypanosome in question.

It is against the zebra especially that the Zululand farmer is now appealing, for large herds of these beautiful but useless animals inhabit northern Zululand, generally in close association with the wildebeeste.

Hitherto the game-hunter has spared the zebra, which has existed unmolested save by the lion, and this immunity from man's attack has been due as much to the fact that the zebra until lately has been supposed free from the risk of conveying the disease nagana as from a natural reluctance to shoot wantonly an animal so resembling the horse in shape and so graceful in colour and action.

Now, however, it seems we must apply the old adage " Handsome is as handsome does," and the zebra's gaily painted coat can no longer save him from inclusion in the proscribed list.

If the fly—Glossina morsitans—could by any means be exterminated the life-cycle of the trypanosome would be broken, as no means would then exist for the latter's transmission to its ultimate animal host. This policy of fly extinction appears less hopeless than would at first sight seem possible, inasmuch as the normal habitat of the fly is restricted to certain well-defined wooded regions or " belts," and it is urged either that the destruction of these belts or the making of such belts inaccessible to big game would prevent the further spread of disease. Both these policies would, however, entail enormous effort and expense, and the driving away or the extermination of the big game itself is found the most practicable way of preventing the extension of the disease to the domestic animals of the white farmers, for it is found that the fly follows the immigrations of the big game and so remains always in close association with these normal reservoirs of the trypanosome.

The whole problem, indeed, is greatly increased in gravity by the finding in recent years that the Glossina morsitans is capable also of transmitting another trypanosome (T. rhodesiensis) to man himself, thereby inducing the deadly disease, Sleeping-sickness.

The introduction, therefore, of a case of sleeping-sickness into a district such as Northern Zululand, where the Glossina morsitans

abounds, would be likely to lead to the permanent establishment of this dreaded disease in the centre of the white population.

Such a happening would, indeed, render the lot of the East African settler an unenviable one, and we can well understand and sympathise with the anxious deputation of Zululand farmers in their appeal to the Union Government for some amelioration of their condition in respect both to past loss and future risk.

SLEEPING SICKNESS AMONG CATTLE.

A NEW PERIL IN SOUTH AFRICA.

"Nagana," a sleeping sickness which is devastating stock of all descriptions in Zululand, is bringing many of the young settlers in the country face to face with ruin. The infection is carried by the tsetse fly, and it is generally agreed that big game, especially zebra, is largely responsible for the spread of the disease.

The farmers of N'Tambanana recently met to discuss with Colonel Reitz, the Minister of Lands, the possibilities of financial relief, pointing out that all their capital had been invested in stock which had been carried away by nagana before they could make any profits. Colonel Reitz said that, although the Government fully sympathised with the plight of the settlers, it could not grant financial help, but was willing to make what concessions it could in the way of allowing settlers to sell their holdings and not pressing for instalments of rent, etc. He urged them, however, not to sell, as no part of the Union had greater potentialities.

It is the general opinion among farmers that if the farm and bush are cleared of big game nagana will disappear; it is suggested that the Government might do away with the game reserve, except for one sanctuary in the north, make shooting free, and give, say, 500-acre holdings to applicants who would clear them and thus make an anti-fly belt.

Although human sleeping sickness and nagana are known to be conveyed by distinct species of tsetse fly, it is apprehended that the nagana fly may be capable of also conveying sleeping sickness to human beings, once the infection is introduced into the country by human hosts. The nagana area stretches to within only a fairly short distance of large centres of population, which materially increases the urgency of the matter.—*The Observer.*

Clinical.

CLINICAL FRAGMENTS.

By F. J. HARVEY, F.R.C.V.S.
(*St. Columb, Cornwall*).

VAGINAL HÆMORRHAGES IN MARES.

THERE does not appear to be any description in veterinary literature, at least the writer has met with none, of a condition affecting mares in which there is frequent passing of blood *per vaginum* for quite lengthened periods, and which may ultimately result in the establishment of a severe or marked anæmia. The condition is not common but I have encountered two cases within a year, whilst I have met with perhaps half a dozen or more in the course of practice.

Most of the animals have had youth on their side and two at least have been known to have been pregnant at the time of the hæmorrhage. Seasonal incidence has been lacking and of the last two cases, one occurred in the month of November, and the other in June. As to recurrence, one mare only has been noted as having had a return of the bleeding, and here it occurred on two subsequent periods separated by a year or more from one another. It is interesting to note that the latter animal had a marked varicosed condition of the veins of her mammary region, and was of a very lymphatic temperament. The mares have been mostly of the shire type, and one commenced bleeding after doing some heavy haulage, and had been bleeding more or less a month before coming under treatment. The condition seems to have little or no definite connection with the parturient state or oestrum.

Symptoms.—Attention may be first directed to the animal by the presence of dried blood on the hair of the tail, and on the hocks and feather below, or perhaps fresh blood may be passed after micturition, or in other instances old blood-clot will be found on the ground. In the early stages the general health has not been interfered with, fever, pain and stiffness being absent and the appetite good. The amount of hæmorrhage will determine the degree of wasting which follows. If the mare is in good condition, she soon loses her bloom, becomes pitch-haired, sluggish in her movements and easily run down. In long cases or neglected ones, the mucous membranes become pale and a general anæmic state is established, with considerable loss of body weight. On examination the vaginal passage is usually found to contain old and new clot and liquid blood. There is no evidence of inflammation or thickening of the walls of the organ or of the uterine os, the latter being in a rather flabby or toneless condition. If the contained blood debris be removed, the part washed, and the

hand then allowed to rest quietly in the cavity for a minute or two, and then carefully withdrawn, the presence of fresh bloodstain on some parts of the hand may indicate the site of the bleeding vessels. In one case the oozing of blood was taking place from the roof of the vagina and in another from near the *os uteri*.

Treatment.—Once the actual nature of the condition causing the hæmorrhage was recognised the treatment proved simple and effective. All blood clot was removed and a solution of alum, of the strength of one in forty of water was injected into the vagina through a soft rubber tube, and the treatment repeated every other day. Three injections were generally sufficient. The mare should be kept at rest during treatment, and not worked for a week or ten days after cessation of the flow.

Discussion.—This form of hæmorrhage seems peculiar to mares, and is in all probability determined by the special anatomical features and disposition of the vaginal mucous membrane, necessitated by the unusual nature of the acts of parturition (the latter being a galloping one) and coition, in this animal; since in both instances allowance has to be made for sudden ballooning and distension. The membrane is disposed in longitudinal folds which are especially well developed around the os; it is but loosely attached to the underlying tissues and in certain mares the condition tends to become exaggerated. The vessels in the folds, having little or no support, rupture and oozing take place, the escaped blood collecting in the well of the vagina, to be periodically expelled, particularly after urination.

The extraordinary distensibility of the vaginal walls in the female equine was recently evidenced by a mare delivering herself in a few minutes, without assistance, of a live foal, in which the presentation was a thigh and croup one. A cow would probably take some hours to deliver herself in a similar presentation.

Similarly the free nature of the membrane readily allows of the vagina taking on the function of the bladder in acting as a reservoir for the urine in long-standing cases of inversion and prolapse of the latter organ.

According to Fleming's "Veterinary Obstetrics" (Craig), the vaginal folds if existing in the cow are transverse. In the latter animal prolapse of the vagina is common, while in the mare with her loose longitudinal folds it is rare, and I have only seen it with her during an attack of colic at almost full term and during periods of straining. The cow tolerates exposure of the vaginal mucosa well; in the mare necrosis would quickly follow any such condition and it rarely occurs. Another feature of the vaginal mucous membrane in mares is the readiness with which adhesions follow difficult parturition, and it is

probably good practice to examine cases, in which there has been much interference, at the end of a month so that any adhesions present may be broken down. In one case the union between the walls of the vagina brought about a condition in the mare just like the so-called "White Heifer Disease."

ON THE COMPARATIVE TENDENCY TO INVERSION OF THE UTERUS AND ITS HORNS IN THE MARE AND COW.

Terms.—In veterinary obstetrics the terms "inversion" and "prolapse," as applied to the womb, are used interchangeably, but in midwifery the term "inversion of the womb" means that the organ (or part) is turned inside out and bulges into the vagina like a tumour, and when the parts appear outside the vulva the condition is said to be one of prolapse. This seems to me the better usage and is here adopted.

A study of the comparative differences concerning the physiology and pathology of parturition and the accidents and diseases incidental thereto is an interesting and important one for the veterinary practitioner. The principal point under discussion in this article is the remarkable ease with which inversion or invagination of the horns of the uterus may be brought about in mares during attempts at removal of retained membranes, and the rarity with which this form of displacement occurs in carrying out the same procedure in cows, at least in the experience of the writer. At first sight this statement would seem quite contrary to the general experience as to what actually happens, judging from the frequency with which one meets with cases of prolapse of the uterus in cows and the rarity with which we see it in mares.

The difference is, however, more apparent than real, since the cows in a district so greatly outnumber the mares; and, moreover, cases occur in mares which are never seen by the practitioner at all, since death in some instances takes place so quickly after the prolapse of the organ that the mare is dead or dying when the accident is discovered, for while a cow or ewe may live with the uterus outside for a considerable period, it is only exceptionally that a mare lives many hours in a similar state, notable exceptions being met with from time to time.

A study of the mechanism of the induction of inversion and prolapse in the mare and cow respectively serves to explain, however, why the accident is actually more common in the latter, especially prolapse. The causes which bring about inversion in the cow are not as a rule those operating in the mare, and *vice versa*. In the mare, displacement invariably would seem to begin with the horn of the uterus, and is determined by a pull on the membrane still attached to the horn, foaling in the standing position, or with a tough and short umbilical

cord, and the mare getting up after foaling with the cord unbroken and the placenta still attached to the horn, or the mare may be stepping with a hind foot on the protruding membranes in the act of rising, and thus the uterus is pulled out, or sufficiently inverted to permit of straining bringing about prolapse. In the cow the part of the uterus which as a rule is the first to be prolapsed is the os. The body of the uterus is carried backwards, taking the horns along with it. When the backward movement of the uterus becomes arrested any pressure from in front, induced by straining, will readily turn the whole thing inside out.

Inversion of the horns without displacement of the body of the uterus is rather a rare condition to be met with in the cow, when one is called in to a case of retained membranes, and I have encountered the condition in about an equal number of cases in mares and cows. It is remarkable that, while prolapse of the uterus in the mare is so fatal, an accident, inversion of a horn would seem to involve little danger to life provided the condition be recognised and dealt with in time. No case of inversion of the horn of the uterus in mares has so far ended unfavourably, and reposition has been easy except in one case, where it was impossible to reduce it and the cauliflower-like enlargement was left as found. Nothing happened, however, and the mare carried a foal the following year.

It has been surprising how easy it has proved in many instances to start inversion of the horn in mares when the placenta has been attached well forward, and no traction should ever be employed until a hand is used to support the uterus, and to separate the membrane at the point of attachment. In removing the afterbirth in cows the point of greatest difficulty is the detachment of the most anterior cotyledons in the horn, and although a considerable degree of traction has been tried purposely on numerous occasions, in no single instance has inversion of the horn ever occurred. In fact, in the cow there would seem to be no special tendency to inversion of the uterus until a backward displacement of the entire organ had previously taken place, and then it readily occurred ; while in the mare this special tendency did exist apart from any displacement of the body or posterior segment of the organ; but this tendency is more than counterbalanced by the facility with which the chorionic membranes become detached from the uterus in the great majority of cases. The essential factor in bringing about prolapse of the uterus in a mare, as already indicated, is a placenta adherent well forward and accidentally or carelessly pulled on during or after parturition, intrinsic causes playing a minor rôle. In the cow the etiology is complex, involving relaxation of pelvic ligaments ; relaxation and prolapse of the vaginal wall ; insufficiently dilated os and premature drawing of the calf, or gigantism of the

latter, and practically all involve backward movement of the body of the uterus, a condition not met with in the mare.

ANOPLOCEPHALA MAGNA (ABILDGAARD) = *A. PLICATA* (ZEDER) FROM A HORSE IN WALES.

By A. W. NOEL PILLERS, F.R.C.V.S.
(*Liverpool.*)

In April of this year I received from Major C. A. Murray, R.A.V.C., officer commanding the Veterinary Hospital at Prees Heath, Salop, a bottle containing several specimens of the above species. They

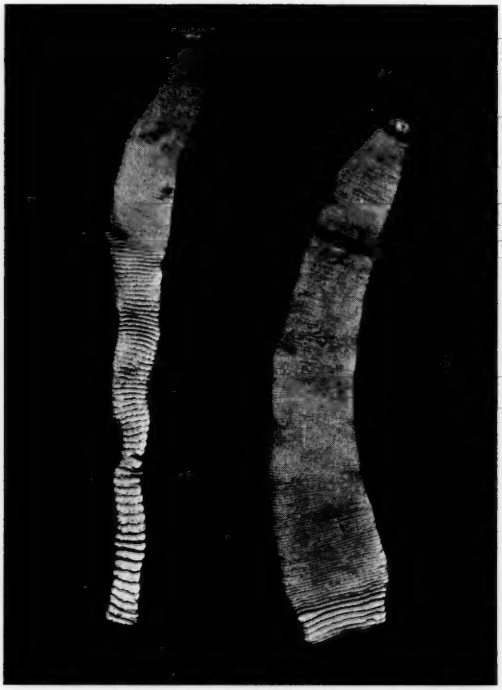

Fig. 1.—*Anoplocephala magna* (slightly reduced).

were taken by him from an army mare, and the history of the case was as follows :—She was an American-bred animal of the Percheron type and had been repatriated from France or the Rhine towns of Germany some time after the Armistice. She was allotted to a person at Llantrissant, Glamorganshire, under the Territorial boarding-out scheme. At a periodic inspection she was found to be in poor condition and was consequently sent into hospital for further examination and

treatment. Shortly after admission she was taken with severe colic and a twist was diagnosed. After a brief illness she died. Post-mortem examination revealed a twist of the double colon. In the small intestine were 58 specimens of *A. magna ;* most of them were in the jejunum and ileum. Numerous *Ascaris megalocephala* (displaced from their normal habitat) were present in the large bowel. I have not been able to find any recent record of the occurrence of this tape-worm in the United Kingdom, although the allied *A. perfoliata,* a form with lappets, I have encountered in Cornwall, Derby, Leicester, Lincoln and the West Riding.

A. magna has no lappets or lobes projecting from the base of the head. Of the specimens illustrated in Fig. I. that on the left is 10.5 cms. long, and that on the right is 18 mm. broad at its greatest point. It is a very plastic species. Railliet (1) described three varieties, viz., *pediculata, restricta,* and *straugulata.* The latter measured 9.5 cms. in length and 18 to 20 mms. at its greatest width. It was the longest of his three varieties and was found in great numbers in anæmic foals by M. Guillod, veterinaire of Etain (Meuse). Large numbers were present in the small bowel from the stomach to colon ; badly affected animals died after showing symptoms of dull colic. The length of the present specimens exceeds that given by Railliet (1), Neumann (2) and myself (3), from specimens from Hanover. Underhill (4) states that it may measure 12 cms., and Law (5) 6 to 30 inches, whilst Cobbold (6) goes so far as to say it "acquires a length of three feet." I do not think that he found it in this country.

Equine tapeworms appear to gradually become less rare as one passes from Western to Eastern Europe, until in Eastern Russia they are often encountered (Neumann). It is possible that in the present case infection occurred abroad, but that point cannot be settled definitely, as we do not know the life history or the duration of life of these worms. Stephens (7) states that certain cestodes of man may attain an age of several or many years (thirty-five).

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SPEWING THE CUD.

By W. R. DAVIS, M.R.C.V.S.,
Enfield.

Most veterinary surgeons whose practice embraces cattle are familiar with cases in which a cow is found with her manger half full of a greenish, sour-smelling, pultaceous mass ; or if the cow is at grass masses of the same material are found here and there on the pasture. The cow is said to be dropping (or spewing) the cud. This malady is usually said to arise from one of two causes :—

(1) Painful affections of the mouth.

(2) Digestive disturbances attributable to decomposing or otherwise irritating foods.

It is also said to have accompanied actinomycosis of the rumen and of the other compartments of the bovine stomach.

Within the past year I have met with several cases of this affection (two on one farm), and I devoted considerable time to watching the last patient. As a result I began to doubt the accuracy of the views generally held as to its etiology and as to the manner in which the material is rejected. I found this cow, a young dairy shorthorn, with the trough half full of the usual greenish matter. I noticed that the left ear drooped and that the left eye appeared to be smaller and more covered by the eyelids than the right. The farmer told me that this cow had been horned several times by another of the herd on the previous day.

As I stood watching my patient she commenced to chew the cud, and as she did so I observed that now and then a quantity of the chewed matter, semi-fluid from abundant saliva, welled out (or, rather, was churned out) from the left side of the mouth and fell into the manger. I watched the cow for half-an-hour, and each time she " cudded " there was the same pushing out of chewed matter. The cow appeared to be losing the greater part of the cud.

It seemed to me that in this case, at any rate, the malady was due to injury to the seventh cranial nerve and consequent paralysis of the cheek. It was not a question of vomiting or dropping the cud out of the mouth from pain ; it was a case of sheer inability to retain the half fluid mass in the mouth and swallow it. I was confirmed in this view by the remembrance of what I saw in a foal last year. A mare and foal were turned out in a field with a two-year old gelding, and the latter, wishing to play with the foal, frightened the little creature so that it ran into a gate, through which it pushed its head and received a very severe wound behind and below the left ear on withdrawing the head. There must have been considerable violence, as a piece was chipped off the wing of the atlas. The wound healed after some

weeks, but all the time part of the milk, as the foal sucked, poured out of the side of the mouth. In this case the ear drooped, the eye of the affected side appeared smaller, and the nose was twisted to the off side. I lost sight of the foal until last February, when the owner asked me to make an examination and report whether it was worth keeping the colt. I found the animal in very poor condition and stunted in growth. It was eating some crushed oats, and part of the food was churned out at the left side of the mouth. As I was informed that this had been going on all the winter I advised slaughter, which was carried out. I felt sure that this case was parallel with that in the cow described above, and I am convinced that painful affections of the mouth (actinomycosis, diseased teeth, etc.) have little to do with the malady under consideration. A friend informs me that he saw " spewing the cud " follow lightning stroke in a cow, the head and neck being the seat of injury.

CASTRATION OF HORSES BY " MALLING."

By B. DORASMY IYENGAR, G.M.V.C.,
Veterinary Inspector, Karimnagar, Nizam's Dominions, India.

HAVING read an article in your valuable journal for January, 1921, I am induced to describe the process of castration of horses by the Afghan method of malling. I have only once seen an animal being treated that way, by a graduate of the Bombay Veterinary College, whose name I do not want to publish.

Mr. Dalrymple-Hay, in his article referred to, seems to have been informed that the " operation is not a long one," which is wrong, as the case which I saw took a full hour or even more.

I herewith describe the process. The subject, or rather the poor victim of the operation, was a bay country-bred animal, 5 years old and about 14 hands high. He was cast under a tree, on some bedding of paddy-straw. Then all the four legs were tied up together; the animal was then turned on its back and the rope from the legs fastened on to the branch of the tree under which he was lying, the head and tail being held in position by four or five men.

After being cleansed, the two testicles were secured with a string and thus prevented from slipping. The next thing was the malling of the spermatic cords. A soft mass of a mixture of sweet oil and turmeric powder was applied on the cord and the part intended to be " malled." The object of this oil-mixture is to keep the skin lubricated and thus prevent erosions. As one operator got tired, several others followed in rotation and in the end the cord became completely flabby and soft. After this, two pieces of sticks, one on either side of the

cord, were placed and tied tightly to both ends, as if the testicles were placed in a vice.

The ropes on the animal were then removed and it was allowed to stand. He was shivering and sweating and not in a position even to keep his balance up. The sticks were loosened after about six hours, and the scrotum was greatly swollen.

The after treatment lasted over a month, and, if my memory is right, there were some complications.

Thus in brief I have described the "malling" operation of horses, and I leave it to your readers to make their own decision on the subject. I for my part consider it a masterpiece of barbarism.

A NEWLY-BORN CALF THAT FASTED FOR TWELVE DAYS.

By W. T. HEWETSON, M.R.C.V.S.,
(Brampton, Carlisle.)

WHAT I am about to relate seems almost incredible, nevertheless it is true. Mr. Fred Headley, Gapshields, Gilsland, Carlisle, had an in-calf Galloway cow, carrying her second calf, grazing on a fell or moorland pasture, three hundred acres in extent, along with two other cows in-calf but not giving any milk, and fifteen young cattle. On Friday morning, July 8, 1921, it was observed the cow had calved, but no calf could be found. She was allowed to remain on the fell pasture for a day, and a strict watch was kept to see if she would find her calf, or go back to the place where she had calved. But she did not show any anxiety for her offspring, nor did she give any clue as to the whereabouts of the calf. On the following day, Saturday, she was removed to the homestead and placed amongst the other milking cows.

For two days the rough fell pasture was searched to find the calf, but it was nowhere to be found. As there was a pond of water on the fell, the search was given up, as it was thought the cow must have calved near this, and the calf in its attempts to rise was supposed to have fallen into the water, and been drowned. On Wednesday morning, July 20, one of Mr. Headley's sons was on the fell shepherding, when he received a surprise. A black calf rose to its feet in front of him, gave a bellow and trotted off a few yards. It was a black heifer calf, and no beauty. Mr. Headley said, " It was the smallest, lightest, most bony calf I ever saw ; I took it up into my arms and carried it home."

On arriving home the calf received a tablespoonful of castor oil, and about four o'clock in the afternoon it was given a gill of milk and water—half milk and half water. It was given a tablespoonful of castor oil every day for a few days, as the bowels were constipated,

but it scarcely passed anything; and when it had a motion it was very dark-coloured. The calf was fed on milk and water, four times a day. When the bowels became normal the oil was discontinued and a dessert-spoonful of treacle was added to the milk.

The calf is now three weeks' old, and is doing well, though comparatively small in size for its age.

This calf was without food or water for twelve days, and was on the moor night and day. The weather at the time was dry and most of the days were hot.

I could not have thought it was possible for a calf to live so long without food. Yet this calf did, and lived to recover from its long fast. The mother of the calf never suckled a calf; her first calf was reared by hand. This might account somewhat for her apathy to her offspring.

Would the calf have lived if it had suckled its mother once or twice, and then been weaned?

PIROPLASMOSIS OF THE REINDEER.

By FRANK CHAMBERS, F.R.C.V.S., late Major R.A.V.C.,
Wolverhampton.

During the winter of 1918-19, in the course of my military duties in North Russia, I had occasion to enquire into the diseases of reindeer as affecting their utility from a military point of view. Although reindeer have not been greatly used for military transport work, yet discussions with Russian experts and Russian veterinarians who have lived in the Arctic regions for many years have been of intense interest. There are quite a number of diseases which are peculiar to reindeer, but to meet with piroplasmosis so far north was somewhat of a surprise. It appears that M. Kertzelli was the first to draw attention to a fatal disease amongst reindeer known by the Samoyeds as spleen disease. He was successful in discovering a piroplasm which he called the Piroplasma Tarandi Rhangferis.

The symptoms of the disease are somewhat obscure, as apparently it is not the custom of Russian veterinary officers to travel amongst the Samoyeds in the summer, and all the work is done in the winter when travelling can be undertaken in comfort. Although it is well known that spleen disease only exists in summer, yet no Russian has taken the trouble (since Kertzelli made his original expedition) to travel to the Tundra and see the disease. For description of the symptoms they all appear to rely on the word of the Samoyeds—a most unintelligent and absolutely uneducated people.

Eckert published an article in the " Archive Veterinarich Navok," Vol. 3, 1909, on diseases of reindeer, and in connection with the symptoms of spleen disease he writes :—

" Spleen disease attacks almost exclusively only working bulls or driving deer, especially those of them who have not been working for some time and have had the benefit of plenty of food. The moment when they are attacked by this disease is when these animals are called upon to do heavy work, running long distances, or pulling heavy loads in sleighs. The animal attacked suddenly stops in the road, commences to shake, as though from severe giddiness, and falls to the earth in the harness. If we examine the animal at this moment we are most struck by the paleness of all visible mucous membranes. It sometimes occurs that a stricken animal dies at once ; others, however, if they are liberated from their harness and allowed to remain quiet, soon get on their feet and gradually recover from the sickness which thus appears to have been only a ' fit.' Finally, some deer which appear to have recovered, when forced to move again, are attacked a second and a third time and die in one of these attacks.

" Recoveries from secondary attacks of this disease are very seldom seen. An examination of a dead deer, according to the evidence of the Samoyeds, give the following results. Besides the above-mentioned paleness of the mucous membranes, sometimes the peritoneal lining of the abdomen takes on a yellowish green colour whereas the blood-forming organs of the abdomen, especially the spleen, a mass of blood collects. The spleen is much enlarged, becoming several times as large as the normal. The liver is also filled with blood. As to information regarding other parts of the body we were unable to get reliable evidence. The pathological condition of the spleen cannot be regarded as symptomic or a temporary phase of the disease as Samoyeds who know this disease well emphatically state that in the case of deer which have entirely recovered from this illness and have been examined several months afterwards, were found with this organ very considerably enlarged.

" The same applies to the icteric condition of the membranes which remains for a considerable time after the animal has recovered. In the majority of cases, deer which have suffered from this disease do not fully recover. The animal remains for a long time weak and thin, in consequence of which it is generally killed by the owner. The mortality amongst bad cases of this disease is 50 per cent., but in the ordinary way it is slightly less. The Samoyeds think that the cause of the disease is due to eating certain grasses which grow in the most marshy parts of the Tundra, but it must be noted that in other parts the disease is met with also."

The above description does not throw much light on the subject.

Kertzelli in the summer of 1909 made an expedition into the Tundra of the Arctic and did better work. His results were published by the Ministry of the Interior in the form of a pamphlet. A translation of this pamphlet is given herewith :—

SPLEEN DISEASE: PIROPLASMOSIS OF REINDEER.

By Sergius Kertzelli.

" Amongst the reindeer is found a special disease called by the natives spleen disease.

" This disease appears chiefly in the second half of the summer. There is not the slightest doubt of the fact that in the very great majority of cases the owners do not notice that the animal is sick. This disease is only noticed when the animal is made to work—harnessed into a sleigh—then its great weakness becomes evident. On examination of a sick animal one notices a most surprising paleness of the mucous membrane and a sharply defined enlargement of the spleen. When using the thermometer the temperature is not higher than 39 degrees Centigrade. There was no blood stained urine.

" *Post-Mortem*.—One is struck by the weak coagulating property of the blood, its unusually pale colour and great wateriness. The blood gives the impression of slightly tinted water. All the muscles are very pale and flabby. In the chest I sometimes found a small quantity of bloody exudate. The serous membranes are unusually pale. The liver is of a yellowish colour, slightly enlarged and flabby. The spleen is of greyish red, rather hard and very much enlarged. In one case I found a spleen 30 cms. long ; 23-25 cms. wide ; and 9 cms. thick. (Normal spleen of reindeer :—23-25 cms. long ; 15-17 cms. wide ; 3-4 cms. thick). The kidneys are pale, and the lungs are greyish pink. From the cut surface there exudes a considerable quantity of slightly frothy pinkish liquid. Hæmorrhages I did not notice anywhere. The lymphatic glands of the abdomen and chest are considerably enlarged, and many of them flabby. The disgusting condition in which I lived prevented me from undertaking even a superficial examination of the blood, and in the Tundra I had to satisfy myself with the discovery of some sort of a blood parasite in the erythrocytes, after which I employed myself solely to the preparation of smears. For this purpose blood was taken from the ear of a living deer, whilst from dead and cut bodies it was taken from large and small vessels, the heart, and the spleen. To my sorrow, a number of these smears that I made were lost at the Tundra. In crossing a stream my sleigh overturned and a box containing about fifty smears sank to the bottom. I was, however, enabled to bring a number home in safety. As I was forced to prepare these smears under far from laboratory conditions, many of the preparations turned out to be dirty, and I was unable to utilise them. The well-preserved smears were fixed in absolute alcohol for one-half to three-quarters of an hour. The staining of the fixed preparations was continued for half-an-hour with a solution of ciemsa. The results of examination of preparations which were suitable showed us the following. In red blood cells we find included a parasite which has the character of a single-celled organism. The piece of protoplasm which takes a blue colour, very intense on the periphery and slight in the centre, and a nucleus, a chromatic body, which takes a dark ruby colour with a violet shade. The nucleus of these organisms always occupies an eccentric position on the periphery or at the end of these inclusions. These inclusions found are generally in the middle of the red blood corpuscle. They are seldom found on the edge. I did not see a single instance of their being on the periphery of the corpuscle, from the outside. The size of the parasites varies from half to one and a half to two microns. These parasites are found in the red blood corpuscles generally single, more seldom in pairs, and very seldom in threes. Examining the morphological signs of these inclusions the following three groups can, without difficulty, be seen :—

" 1. Comparatively rarely in the red blood corpuscles we meet red-shaped parasites to the size of half a micron, sometimes straight ; sometimes bent occurring either singly or in pairs ; sometimes almost parallel to one another, at different angles, sometimes crossed in the form of an X. On one end of these formations is a nucleus in the form of a spot sharply painted out in a ruby red colour with a violet shade. The rod itself takes on an unequal bluish

colour. This group of formations we will call the stick-shaped group, and analogous with the piroplasmata of horned cattle the young evolutionary form of the found parasite.

" 2. The second, which is quite often met with, is a spherical shaped parasite, and, comparing the different sizes of it, we may gather that the smallest of the spherical parasites are formed out of the stick-shaped ones. According as these protoplasm collect, these very small spherical formations considerably increase in size, growing to one and a half to two microns. The protoplasm of these parasites on the periphery are strongly coloured, forming in one part a considerably increased thickness in which is found the nucleus of the parasite, and which takes on a ruby red colour. The nucleus of these formations is found either in the form of a grain (seed), or in the form of a bent compact rod placed on the periphery of the parasite.

" 3. The third group is very seldom met with and is a typically pear-shaped form. The protoplasm of these pear-shaped formations, both at the thin and thick ends, is deeply stained, while in the centre the staining is considerably less. In the thickened edges of these pear-shaped formations is found a nucleus in the form of a grain or in the form of a bent stick. These pear-shaped bodies are not met with singly, in pairs only as a possibility. Not doubting that in this case I am dealing with a single-celled organism living parasitically in the red blood corpuscle, by virtue of the third group of parasites that I have described and by analogy with the piroplasmata of our domestic cattle, I will permit myself to group them with the piroplasmata and will call them a new type of the piroplasma of the reindeer. (Piroplasma tarandi Rhangferis). Without pre-deciding the question of the evolution of the parasite in the blood of sick animals, I will only permit myself to note the following.

" The lengthened nucleus of the parasite divides into two grains. Into the further process of division is drawn also the protoplasm of the parasite and the result is two new parasites of a round or slightly drawn-out form. Thus it cannot be doubted that the parasite may increase in the blood by means of simple division. I was unable to discover any further period of increase of parasites for lack of preparations. The parasite is chiefly met with in the single form, more seldom in pairs, and very seldom in threes. Two small spherical parasites two large ones, a large spherically-shaped one, including a stick-shaped one, three small spherically-shaped ones, a pear-shaped one, with a small spherical one and so on.

" Examining thick smears of blood it is easy to make sure that the red blood corpuscles have not lost the power of piling themselves up (Roulés). When studying the change of the morphological elements of the blood I was able to note a considerable decrease in the number of the red blood corpuscles, and at the same time that both their form and size varied, plainly standing out in a very great quantity of large formations, which are almost twice as large as a normal red blood corpuscle, with blue spots on a pinkish ground. (No doubt a condition of Basophilia.—F. C.)

" On counting up I find almost 10 per cent. of these bodies. In one preparation I found a blue-spotted cell which contained a nucleus stained violet colour. Occasionally I found erythroblasts—very large red corpuscles with a large oval nucleus plainly standing out on a pink ground. I was able to find, in inconsiderable quantities, chromatophiles. As regards the white blood corpuscles I only allow myself at present to note a considerable increase in polymorphonuclear and esoniphoils. After a cursory examination of sections from the spleen of a killed reindeer I was able to discover considerable hyperplasia of the forming elements—an increase in the connective tissues and a considerable collection of brown pigment. In sections from the lymphatic glands I discovered in some parts hyperplasia of the forming elements, and, in others, a process of atrophy so far advanced that there remained in some places almost only one stroma of the gland, with an inconsiderable quantity of the forming elements, a large number of which were in different stages of necrosis."

I have not yet seen a case of this disease and it is very unlikely that I shall, for an expedition into the Tundra during the summer is for me impossible, but I have had a large number of smears placed at my disposal. In two of the smears examined (both from different

animals) I observed a pure infection of an organism which resembles the Anaplasma Marjinale. A large percentage of the parasites were placed just within the periphery of the red blood cells. There was no sign of anæmia in either of the slides. Some of the slides showed an infection with a parasite resembling very closely the piroplasma mutans, but the infections were never pure. There were always a number of anaplasma present. The striking fact is that none of the slides, save one, showed any of the classical phenomena of anæmia. The one exception showed a slight basophilia. I did not observe any organism which resembled in any degree the babesia bigeminum, although Kertzell claims to have seen them.

No attempt seems to have been made at experimental transmission, and no mention is made of the transmitting agent. It is quite possible, as in other forms of piroplasmosis, that reindeer require a certain amount of immunity through getting infected when young, and it is probable that the cases of spleen disease are merely breakdowns in the immunity caused by another disease. I have questioned the local reindeer "experts," but none seem to know what is the transmitting agent. None of these have seen a tick in the regions of the Tundra. This is to be expected, for these investigators only make their trips when the country is snow and ice-bound, and one would not expect to find ticks then. When on the Kola Peninsula in June I was struck by the enormous number and variety of biting flies (especially tabinadæ) that existed there. What they live on in these regions is a puzzle, for in my travels I saw no living thing. All the flies that I caught were absolutely empty and, judging from their ferocity and determination to counter attack when repulsed, they must have been exceedingly hungry.

It may be possible that these tabanidæ transmit the disease mechanically, as they do the trypanosomiasis in the Sesheke area in Southern Rhodesia, but I am much inclined to believe that a tick is the transmitting agent, and, if looked for, could be found.

THE FORMALDEHYDE TREATMENT OF MASTITIS.

By LESLIE P. PUGH, B.Sc., F.R.C.V.S.,
Sevenoaks.

I HAVE used half-ounce doses of formaldehyde, twice daily, over a period of ten days, in twenty-three cases of streptococcic mastitis, and in no case was I able to observe any undue beneficial effect that could be definitely ascribed to the internal medicaments. I should very much like to hear the results obtained by other veterinary surgeons who have followed up this line of treatment for this troublesome ailment, which appears to be increasing in frequency. I had

been led to try this remedy after reading the abstract in the VETERINARY JOURNAL of a report (originally published in the journal of the American Medical Association) by S. Frost of a number of cases of mastitis treated by its internal administration.

Abstracts.

THE OPHTHALMIC TUBERCULIN TEST.*

BY A. J. DEFOSSET,
(*Montpelier, Vermont.*)

THE complete eradication of tuberculosis from some herds of cattle in the Eastern States would seem almost a hopeless task were it not for the efficacy of the ophthalmic test. Remarkable progress has been made in Fermont in the control and eradication of the disease, in that many herds have been brought under State and Federal supervision. The dairyman and the breeder have confidence in our methods, and the fundamentals of control rest entirely with their hearty co-operation. Each has become thoroughly familiar with the difficulty of our task and is looking forward as eagerly toward a clean herd as he is to an accredited herd. To many of these men a clean herd means one in which each member is capable of passing an ophthalmic check test.

A large number of reactors have been removed from herds under supervision during the past two years by the use of the subcutaneous method, and many herds have apparently been rid from every trace of disease by this method. There are, however, some herds in which infection continues to persist, even after these herds have succeeded in passing one or more clean tests by the subcutaneous method. Some of these cases have become so conspicuous in certain localities that herd owners demand the ophthalmic check test to detect diseased members. These check tests have been applied with great success.

WHAT HERDS SHOULD BE CHECK TESTED?

It is not always possible to determine by herd history which herds should receive check tests. I have learned from experience and careful study that all pure-bred herds in the New England States should be check tested with the ophthalmic method before being placed upon the accredited herd register.

Animals in certain grade herds which have repeatedly changed ownership also should receive ophthalmic check tests. We no longer deny that an animal may become completely immunised against the

*Presented before the Vermont Veterinary Medical Association, Burlington, Vermont.

action of subcutaneous tuberculin, due perhaps to the frequent use of small doses and other faulty practices. Many of us can readily see how whole herds can become immunised against subcutaneous tuberculin when we reflect for a moment and recall what constituted a tuberculin test but a few years ago—short hour tests and small dosage. And we need not mention the activity of the unscrupulous dealer and his familiarity with the hypodermic syringe. Also I have found certain young animals which apparently possess a natural immunity to subcutaneous tuberculin. Cases have come to my attention where young animals which had never received tuberculin failed absolutely to react to the subcutaneous method, even though large doses were used, and responded violently to the ophthalmic method and on autopsy were found to contain well-marked lesions of disease. These cases and others which have become immunised will respond to the ophthalmic method when properly treated.

Results of Ophthalmic Check Tests.

There have been check tested recently in Vermont by the ophthalmic method 50 herds of pure-bred cattle, representing practically all breeds, and the results have been most astounding. Had the ophthalmic test not been employed there would have remained in these herds 223 diseased cattle, and a number of these herds would have been listed on the free list. Can you conceive of us eradicating tuberculosis unless we look carefully into each case to determine what method of test is required?

These ophthalmic reactors were all slaughtered and showed unmistakable evidence of tuberculosis. Some of the lesions were very slight, some well marked, others extensive and generalised. Some were of a caseous character, while others were caseocalcareous. Acute lesions also are found. In short, all stages of the disease and character of lesions are present on autopsy.

Treatment for the Ophthalmic Test.

These cases cannot be detected by the ophthalmic method unless the animals are properly prepared for treatment, which should be done by instilling ophthalmic tuberculin in one eye about 72 hours before giving the regular test dosage. This preparatory process is known as sensitisation. For making the ophthalmic test I would recommend the special disc prepared by the United States Bureau of Animal Industry. There are tablets on the market prepared by the commercial firms which also are satisfactory.

How the Test Should be Made.

It is most convenient for a right-handed man to treat the left eye of an animal, and we have for this reason chosen the left eye for the test, and for uniformity in work it is necessary that a certain system

be followed. An attendant should hold the head of the animal, which is not difficult to do and needs no special restraint, while the operator stands in front of the subject and raises the upper lid of the left eye by grasping it gently with the left forefinger and thumb. The tablet, which is held between the right forefinger and thumb, should be pushed up under the external lateral lid into the conjunctive fornix. After a little experience a deft and skilful operator can do this without injury or pain to the animal. When the tablet has been placed in position the fingers of the left hand should be released from the upper lid and brought down over both lids, holding them together firmly yet gently so as not to injure the eye until the tablet has dissolved in the closed conjunctival sac which has been forced by bringing the lids in apposition with each other. Great care must be taken that the tablet is not worked out of the eye before it had has time to dissolve.

The tablet should not be placed into the inner angle of the eye because the proper tissue structure cannot be treated there, also the membrana nictitans, whose function it is to remove foreign bodies, would remove much of the tuberculin before proper treatment has been effected. The tuberculin should be placed into the upper fornix of the lateral angle because that portion of the conjuctiva is covered with stratified cylindrical epithelium containing goblet cells and tubular glands. These cells and glands are capable of secreting mucin when reacting to the toxins in the tuberculin.

The criterion of a reaction is a mucopurulent exudate in more or less profusion. We cannot expect a reaction unless we apply the treatment to tissue capable of reacting. A reaction will usually be preceded by slight redness and lacrimation. A reaction usually does not follow the application of the first tablet, which is employed as the sensitising agent. The best results follow the application of the second tablet, which should be given about 72 hours later. It is not well to hasten the time of sensitisation, because the reaction may in some cases be very slight and tend to cause confusion. The best results may be obtained in from three to five days' sensitisation. The ophthalmic test should never be concluded by the application of only one treatment. Very careful sensitisation is absolutely essential if one would expect satisfactory results. If either the sensitisation or the subsequent treatment is carelessly or improperly applied one may note a faint mucous discharge at the inner canthus, which may appear as a little wavy thread, and it is difficult to make an accurate diagnosis and differentiate between the mucopurulent exudate of a tuberculous reaction and a slight mucous discharge commonly seen in normal eyes following the introduction of some foreign substance. A man who would make a successful ophthalmic tuberculin test must be a student

of the test and very observing of what takes place after treatment has been placed into the eye.

Observation should be made if possible in about 10 hours after the first tablet has been introduced, and a note should be made of any changes observed and any deviation from the normal or control right eye, using the proper characters for future reference. After the introduction of the subsequent treatment, observations should be made at hourly intervals or oftener, beginning not later than three hours after the installation of the tablet. Some reactions take place within two hours after the second treatment has been applied. If the treatment has been properly applied, the reactions will be clear and well defined, manifesting themselves first by lacrimation, slight redness of conjunctiva, photophobia, and a free discharge of mucopurulent exudate.

If there is a tendency of the reaction being somewhat retarded or ill-defined, an additional tablet may be given five hours after the second tablet, and this ofttimes tends to give conclusive results if the animal is tuberculous. If there still remains some doubt as to a positive reaction, the animal may be retested within one week by using two tablets without previously sensitising. Most eyes remain sensitised a week or longer after the subsequent treatment. Very young animals or calves very frequently will give a reaction to one treatment of ophthalmic tuberculin.

I recommend the tablet form of tuberculin because of the ease with which it can be placed in the proper tissue structures. Only fresh discs which dissolve readily should be employed.

How Tests Should be Recorded.

It is necessary that we adopt the use of some character so that the degree of reaction can be noted as one would note the degree in a thermic reaction. Inasmuch as certain changes take place in the treated eye during reaction, a note for future reference should be made of these changes. These notes should be in such form that they may be recorded on a chart as one would the numerals in thermic reaction. The notations should be made in the order in which the change becomes manifest. For instance, if lacrimation is observed two hours after treatment, the letter L should be placed in that column. If exudation follows next, then the next column should show LX, and so on. The degree of exudation may be noted from X, meaning slight, to XX, well marked, and XXX, very extensive or copious exudation. When only a trace of exudation is observed, it may be noted by writing $\frac{1}{4}$ or $\frac{1}{2}$X. A positive reaction may be LX or LXXX of varying degree, depending also upon the character of exudation. Hyperemia or redness may be noted by H.

As the ophthalmic test becomes officially recognised there will undoubtedly be issued some instructions for adopting a uniform character or code for recording the reactions.

SOME NECESSARY PRECAUTIONS.

1. Don't treat abnormal eyes or a herd when sore eyes are prevalent.

2. Don't try to make an ophthalmic test in a barn or corral where the wind is sweeping through and blowing dust, cinders or other foreign matter.

3. Don't manipulate the eye of the subject unnecessarily and cause irritation from natural results.

4. Don't try to put tablets into the eyes of animals before you pare your finger nails carefully and cleanse the hands.

5. Don't use irritating chemicals on your hands.

6. Don't try to see something in the eye that isn't present.

7. Don't let the owner feel that you have no confidence in your work.—*Journal of the American Veterinary Medical Association, September*, 1921.

SOME CASES OF ANTHRAX IN MAN AND ANIMALS.

IN the September Quarterly Report of Mr. J. Scott-Bowden, F.R.C.V.S., the Chief Veterinary Inspector for the County of Cumberland, there is recorded another instance of the communicability of an animal disease to man. Eighteen suspected cases were reported to the Police during the Quarter, but fortunately only one proved to be Anthrax. Mr. Scott-Bowden states :—" The certified case of Anthrax occurred in the Parish of Ennerdale, causing the death of a bull, two dogs, and nearly the farmer himself; only the immediate diagnosis and prompt surgical measures adopted by his medical practitioner saved his life. Dr. Eaton, of Cleator Moor, reported to the Police that he was of opinion he had a patient (a farmer) suffering from Anthrax. I visited the farm that day, an isolated fell sheep farm, and was informed a bull had been taken suddenly ill some days previous; the owner wishing to save the carcase cut its throat, took it into the barn and dressed it. He had a slight scratch on his arm at the time. The offal was given to the dogs, two of which (one a fox-hound) died, and another was very ill but recovered. The carcase of the bull went to a local butcher, the hide and bones being later disposed of to dealers. I had one of the dogs exhumed, and even in its decomposed state I was of opinion Anthrax was the cause of death. As a result of Police enquiries the hide from the carcase was traced to a tannery in Lancashire. The local veterinary Inspector for Lancashire made a microscopical examination of the hide and certified Anthrax ; this was

later confirmed by the Ministry of Agriculture. The farm, the butcher's premises, the tannery, and the bone dealer's premises, have all been placed under the restrictions of the order, contaminated material burned, and the premises disinfected. Dr. Eaton's diagnosis was confirmed by a microscopical examination of the excised, diseased portion of his patient's arm, and his blood also contained anthrax bacilli. I have lately seen the farmer in question looking quite well, but firmly resolved never again to attempt the salving of a carcase of an ailing beast. Would that this man's narrow shave for his life could be a lesson to all stock-owners not to risk their own, and their fellow-men's lives, by "cutting an animal's throat to save its life" regardless of what disease it is suffering from at the time, and who is going to eat it afterwards. It is one more case that proves there should not be an outlet for such carcases, and that only such meat as is killed in a public slaughter-house, and is passed by a veterinary surgeon as fit for human consumption, should be allowed to be sold to the public. So long as you have private slaughter-houses all over the country the inspection of meat cannot be carried out, and tuberculous carcases of meat will also find their way to the consumer."

Personal.

Capt. Henry Eyton Hornby, O.B.E., F.R.C.V.S., D.V.S.M., has been appointed Chief Veterinary Pathologist to the Government of Tanganyika Territory, East Africa, and Capt. John Smith, M.R.C.V.S., D.V.H., Chief Veterinary Officer in Northern Rhodesia. These gentlemen will take up their duties very shortly, and will each be accompanied by the good wishes of many friends in the profession.

Congratulations to Professor Guido Finzi, a distinguished Italian veterinarian, who is also an Associate of the Royal College of Veterinary Surgeons, on his appointment as Director of the Veterinary Faculty of the Royal University of Turin. Professor Finzi was well known to many of the R.A.V.C. officers in Italy, and during the war served his country as a veterinary officer, being promoted to the rank of lieutenant colonel as a reward for his distinguished services. His position in the University of Turin is that of Professor of Veterinary Pathology and Bacteriology.

We regret to notice that the Veterinary Profession in America and Canada has sustained a severe loss by the death of two of its most prominent men, Dr. Wm. Horace Hoskins, and Dr. E. A. A.

Grange. The former was Dean of the New York University Veterinary College and the latter a retired Principal of the Ontario University Veterinary College, Toronto.

Dr. Hoskins was for a number of years the chief editor of the *Journal of Comparative Medicine of Veterinary Archives*, and a well-known contributor to veterinary science. He held the office of President of the the American Veterinary Medical Association from 1893 to 1896 and also held the office of Secretary for several years. It was largely owing to his indefatigable exertions that the position of the veterinarian in the United States Army became that of a commissioned officer.

Dr. Grange was by birth a Londoner, but emigrated early to Canada and graduated at the Ontario Veterinary College in 1873. After holding various professorships in agricultural colleges he was appointed to the Principalship of the Ontario Veterinary College in 1908, a position which he held until failing health compelled him to retire in 1918. His son distinguished himself in the British Air Service during the war.

A VERY enthusiastic assembly of well-wishers foregathered at the Holborn Restaurant on Wednesday evening, October 12, to offer hospitality and farewell good wishes to Professor J. T. Edwards, B.Sc., M.R.C.V.S. and his two colleagues, Capts. S. C. J. Bennett and Hugh Cooper, late R.A.V.C., on their departure to take up positions in the Imperial Laboratory at Muktesar, India. Lt.-Col. T. Dunlop Young, O.B.E., D.V.S.M., occupied the chair, and the warmth of the good wishes expressed in the speeches which followed the dinner showed the high esteem in which the above-named three gentlemen are held by their veterinary colleagues. Our wish is that they may enjoy good health and return at some future date laden with honours as the result of the hard work they will have to expend in investigating the countless contagious diseases which are to be met with amongst the animals of the East.

Reviews.

VETERINARY HYGIENE. By R. E. LINTON, M.R.C.V.S., Professor of Hygiene, Royal (Dick) Veterinary College, Edinburgh. Pp. 429; 92 illustrations. Published by W. Green & Son, Edinburgh. Price 26s. net.

VETERINARY hygiene has for some years taken its proper place in the course of studies of the veterinary surgeon, and is daily assuming more importance on account of its close relationship to prophylactic work; as it of necessity follows that before a student

can properly understand the symptoms of disease he must of necessity understand the appearance and normal habits of the animal in health. The practical teaching of this is as essential as the theoretical, and it is in the opportunities for this that our college tuition is wanting. The want of a book like this present one under review has been felt for some years, and Professor Linton is to be congratulated upon the masterly yet simple way in which he has tackled the subject. It is a book which every student will buy, but the chapters on Preventive Medicine and Sanitary Law make it also a book for the practitioner, especially if he is a candidate for the D.V.S.M., D.V.H., or any of the degrees which indicate specialisation in public health work. In the section devoted to Sanitary Law one gets in a concise form all the Acts and legal clauses likely to be of service to the practitioner. In fact, there is something of practical service and utility to every branch of veterinary science, and no veterinary bookshelf is complete without it.

THE ARMY VETERINARY SERVICE IN WAR. By MAJOR-GENERAL SIR JOHN MOORE, K.C.M.G., C.B., F.R.C.V.S., Director of Veterinary Services in India and late D.G. of the British Expeditionary Force, France (1914-19), with a note by GENERAL SIR CHARLES CARMICHAEL MONRO, G.C.B., G.C.S.I., G.C.M.G., A.D.C., Commander-in-Chief in India. Pp. 191; illustrated. Published by H. & W. Brown, 20, Fulham Road, S.W. Price 21s.

THE proceeds of the sale of this book, after the cost of publication has been deducted, are to be devoted to the foundation of a benevolent fund for the personnel of the R.A.V.C. in India, and the personality and popularity of the author ought to make that aim and object one which will receive sufficient support to get the scheme in hand at once. The book, on the centre of the cover of which is the familiar sign of the R.A.V.C., the white triangle on a red background, is divided into six portions, and to read it will bring back to all who served under the author all the many and various problems which had to be solved under conditions of great stress and difficulty. The wastage of animal life, the steps taken to prevent this, and the ultimate successful sequel, are all engraved deeply in the minds of those who were privileged to serve and see the game played through from start to finish.

Comparisons between the horse management of the armies of the Allies and that of the Central Powers show up the Britisher in the front rank every time, and the Royal Army Veterinary Corps can, without being accused of boasting, claim to have been right in the vanguard in this matter.

The losses due to errors of dieting, to the continual standing in the mud, to foot cases (especially the ubiquitous picked-up nail), to glanders, epizootic lymphangitis, and a hundred and one other causes which war produces—all are described and figured in this book, and the methods by which they were tackled and vanquished will form a groundwork for all future wars. War time in all countries is dealt with, and India and the East, with its camels and different varieties of oxen, come in for their share of discussion.

No one serving in the R.A.V.C. can afford to be without it, and to the civilian practitioner it forms a never-failing source of interest,

both as regards the text and the illustrations, the latter being reproductions from actual photographs.

General Sir John Moore has done the profession a great service by his labour of love, and it is to be hoped that his object, to found a benevolent fund with the profits of the book for the R.A.V.C. in India, will be attained.

PIGS, PIGSTIES, AND PORK. By G. MAYALL, M.R.C.V.S. Pp. 227; 63 illustrations. Second Edition; revised and enlarged. Price 10s. 6d. net. Published by Baillière, Tindall & Cox, London.

Mr. Mayall, when bringing out the first edition of this little work, filled up a long-felt want, for the diseases of the pig had been neglected and the proper feeding and general hygiene of the animal were also not properly understood. This book, written in simple but practical, language, is of interest to the pig owner as well as to the veterinarian, and as a text-book for the college student it is *par excellence* the best one which has ever been published.

The various breeds are indicated and described, the method of telling the age, the management of the sow during parturition, the rearing and weaning of the piglings, the construction of pigsties, the methods of slaughter and the curing of the flesh, all have chapters on them well and clearly written; whilst all the most important diseases are touched upon and described.

It is a book equally of use to the student and the practitioner, and should find its place in every stock-owner's and veterinarian's library.

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(1) A MANUAL OF VETERINARY PHYSIOLOGY. By MAJOR-GENERAL SIR F. SMITH, K.C.M.G., C.B., Fellow and Hon. Associate of the Royal College of Veterinary Surgeons, formerly Director-General of the Army Veterinary Service. Fifth Edition. London: 1921. Baillière, Tindall & Cox.

(2) ESSENTIALS OF VETERINARY PHYSIOLOGY. By D. NOEL PATON, M.D., B.Sc., LL.D., F.R.S., Professor of Physiology, University, Glasgow; late Lecturer in Physiology, Royal (Dick) Veterinary College, Edinburgh, and JOHN BOYD ORR, D.S.O., M.C., M.A., M.D., D.Sc., Director, Rowett Institute for Research in Animal Nutrition, Aberdeen; Research Lecturer on Physiology of Nutrition, University, Aberdeen. Third Edition. Edinburgh: 1920. W. GREEN & SON.

WE have here two books of similar title, but of different type. The first, by an eminent veterinarian, deals chiefly with the physiology of the organism and more particularly with that of the horse. The second, by eminent physiologists, is especially devoted to the functions of the tissues and organs.

In his treatment of the latter details, Sir Frederick Smith leaves much to be desired—notably in chemistry. Prof. Paton and Dr. Orr are conspicuously successful in these matters, in spite of the fact that they relegate to an appendix a great deal that is needed in the text. Their terminology and phraseology are, however, so very academic that much otherwise excellent explanation may be hardly intelligible to the practitioner. It is in writing for the physiological layman that

Sir Frederick Smith excels. His descriptions of many of the systems are unusually lucid and illuminating, and cannot fail to be of great value to all his readers.

It would be most difficult—if, indeed, it is possible—for any single author to write a really good text-book on Veterinary Physiology. Those who are familiar with organs and their functions are seldom sufficiently familiar with the daily life of the domestic animals ; whilst those in touch with the latter are out of touch with the experimental physics and chemistry of the body. Far greater results could be achieved by wider co-operation.

An introductory volume, on Experimental Physiology, written primarily for the student, but intelligibly to the practitioner, followed by a volume (or by volumes) designed primarily for practitioners, dealing with the different types of animals, would, given judicious division of labour, furnish a work of much higher standard than has yet been reached. Experimental Physiology is not merely a laboratory pastime—it is, in fact, the basis of all Medical Science. More lucid and complete (not more abstruse) presentation of the laboratory aspect, supplemented by more extensive accounts of the special domestic physiology of the individual domestic animals, would do much more to further the study of comparative pathology and the practice of comparative medicine than has hitherto been done by writers on Veterinary Physiology.

There are plenty of books, and some of them possess excellent features. What is lacking is an intelligible, reliable, complete, and co-ordinated system of Veterinary Physiology. W. L. Symes.

Baillière's Atlas of the Dog : Its Anatomy and Physiology. By Frederick Hobday, C.M.G., F.R.C.V.S., F.R.S.E., Honorary Veterinary Surgeon to His Majesty the King, Member of the Board of Examiners of the R.C.V.S., and F. Harold Stainton, F.R.C.V.S. With 5 original plates containing 43 figures in colour, by Georges Dupuy, M.D. Price 10s. 6d. net. Publishers : Baillière, Tindall & Cox, 8, Henrietta Street, London, W.C.2.

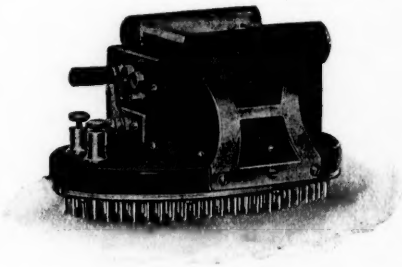
This very excellent atlas of the dog is on similar lines to that published by the same firm on the horse. It has hitherto been somewhat of a reproach to us that no real and plain guide to the anatomy and physiology of the dog has been available until now. The dog is taking a big place in veterinary practice, and yet the student and the practitioner have had to do a good deal of fishing, hunting and exploring to learn much about his bodily structure and physiology. No better men to deal with the subject could have been chosen than the authors and illustrator of this atlas, and they have done their work remarkably well.

The plates are beautifully done and quite easy to understand when looked at by the light of the concise yet comprehensive accompanying text. The text itself is in good bold type and readily referred to when the book is opened out on a wide table. To the veterinary student the atlas ought to be a godsend, and no practitioner who desires to be up-to-date in canine knowledge can afford to be without it. The contents comprise plain and concise descriptions of the skeleton, the various systems of the body, dentition, the ductless glands, and organs of sense. G. M.

New Inventions, etc.

A NEW AND SUCCESSFUL METHOD OF APPLYING ELECTRICITY TO VETERINARY PURPOSES BY THE USE OF THE HOGDKINSON SYSTEM, WHICH HAS FOUND MUCH FAVOUR WITH THE MEDICAL PROFESSION, AND IS NOW ADAPTED TO MEET VETERINARY REQUIREMENTS.

THE above is an illustration of the instrument, reduced to half size. It has the merit of being portable, cleanly, and eliminates the necessity for using wet sponges and single electrodes. The electrical energy required to operate the instrument is derived from a single dry cell of ordinary 1·5 volts E.M.F. This is connected with the instrument by a pair of flexible cords. There is no trouble regarding the " polarity," as the current used or applied to the patient is Faradic, and owing to the rapidity of the alternations there is no reaction from the sensory system, and the risk of " shock " is obviated. The technical details are standardised and interchangeable. The collector



switch on the rear end of the cover of the coil box is arranged to afford three variations of intensity, thus meeting any reasonable requirements in the matter of " dosage." The contact plates on the foundation are separated by an insulating strip of ebonite, and are fixed. These plates act as conductors, and when in contact with the skin complete the electrical circuit. The result is stimulating to a marked degree, though devoid of any exciting result. Hair or fur are well known bad conductors, because they interpose much resistance, and Mr. Hodgkinson has overcome this difficulty by inserting pine in the plates which, penetrating to the skin, convey the current as in the case of human beings. If allowed to rest upon any locality the effect is accumulative, thus demonstrating that the remedy is being absorbed by the underlying muscles and nerves which it is desired to influence.

THE NATIONAL RAT WEEK.

THE Ministry of Agriculture announces a further National Rat Week to be held during the week October 31 to November 5 next. This provides a definite period during which simultaneous action may be taken throughout the country by all who are aware of the presence of rats on their premises. It is important that the action should be energetic as well as taken by all concerned at the one time. Action at different times and confined to limited areas means a considerable measure of ineffectiveness, as it is found that most of the rats immediately upon commencement of operations leave the area of attack until the cessation of hostilities. A general attack sustained throughout the Rat Week will mean that the pest is being driven "out of the frying-pan into the fire."

The weapons against the rat are several. First in importance and suitability for use by householders and occupiers of premises are the poisons Barium Carbonate and Red Squill (Scilla Maritama), which may be obtained from most chemists, and used in accordance with the following instructions. Mix equal weights of the following ingredients into a thick paste :—Barium Carbonate, oatmeal or bread crumbs, minced kipper, and fat ; or mix into a paste 1 part weight of Barium Carbonate, 2 of oatmeal, 1 of fat, and a few drops of aniseed oil. A teaspoonful of either paste is a sufficient poison for a full-sized rat. The paste should be wrapped in twists of paper and placed in rat-holes and runs.

As regards Red Squill, it can be had from many chemists in the form either of liquid extract or of powder. The liquid form may be used in two ways. (1) Pour just as much liquid Squill on bread placed in a basin as the bread will soak up. Then put the bread in twists of paper and lay at once in rat-holes and runs. (2) Add a measure of sweetened milk and water or thin soup stock to an equal measure of liquid Squill. Put down at once in saucers or shallow pans near the holes or in the runs where domestic animals cannot get at it. The bait should be made and laid in the evening. With regard to Red Squill Powder, it can be prepared in the following way :—(1) 2 parts weight of Red Squill, 5 parts weight of cheese, 5 of fat and 6 of oatmeal or flour ; the whole mixed in a thick paste and baked lightly in an oven. (2) 1 part weight of Red Squill, 2 of bacon dripping, 6 of oatmeal or flour ; make into paste and bake lightly. (3) 1 part weight of Red Squill, 5½ of flour, and 2½ of syrup or sugar ; make into paste with milk and water, roll out and bake as biscuit. The ingredients and final product of these mixtures should be touched as little as possible with the hands.

Over and above these special measures, must be the general one of keeping scraps and waste food out of the vermin's way. They must be starved so that they may take up all the poison bait. Larders must be made proof against their inroads ; dustbins must be securely closed ; chicken feed, dog biscuits, oats, oil-cake and feeding stuffs, apples, potatoes, etc., must be put where the rats cannot get at them.

In connection with this announcement, the public is reminded that, under the Rats and Mice (Destruction) Act, 1919, every occupier of premises is responsible for the destruction of rats and mice thereon. Local Authorities are by the Act made responsible for securing the execution and enforcement of measures for rat destruction within their areas. Requests for advice or assistance should therefore be addressed to the Clerk of the Council for the area in which the occupier resides.

An early notice of the proposed Rat Week is being given so that occupiers may order the necessary stocks of poison with a certainty of getting them in time.—*Ministry of Agriculture and Fisheries, October* 10, 1921.

WORLD'S POULTRY CONGRESS.

ITEMS OF INTEREST TO VETERINARY SURGEONS.

THE first World's Poultry Congress, under the patronage of the Dutch Government, was held at The Hague, Holland, September 5—15, 1921. In connection with the Congress there was given an educational exhibit, including over 2,000 fowls, participated in by the leading poultry investigators, instructors and poultry keepers of more than twenty-five countries, including America, Australia, New Zealand, England, Scotland, Wales, Ireland, Denmark, Holland, Austria, Belgium, France, Portugal, Spain, Switzerland, Italy, Egypt, India, Ceylon, etc.

The Exhibition was formally opened at 2 p.m., September 5, by Queen Wilhelmina and Prince Henry of Holland.

The papers contributed came from poultry scientists from all parts of the world. Owing to the enormous field poultry covers, and the scores of papers to be presented, the meetings were divided into four sections, the third being that of Hygiene and Disease.

The section on disease was presided over by Dr. D. A. De Jong, of the State University of Leyden. Twelve papers were presented by veterinary surgeons specialising in the investigation of poultry diseases. Those contributing papers were Dr. J. Poels, Dr. J. R. Beach, Prof. Dechambre, Dr. D. A. De Jong, Dr. L. De Blieck, Dr. F.

Van Heelsbergen, Dr. B. J. C. Te Heunefe, J.Z.N., Dr. B. F. Kaupp, Dr. H. E. Reeser, Dr. L. F. Rettger, and Dr. Camille Terni.

During the business session of the Congress a resolution was passed recommending that, in all countries where poultry production work is an important industry, the teaching of poultry diseases be efficiently and adequately taught in all agricultural and veterinary colleges. It was pointed out that the veterinarian should know more of the anatomy and physiology of the fowl, and be capable of handling parasitic, non-contagious and contagious diseases of fowls.

A second resolution was passed recommending the continued investigation, in all countries, of contagious diseases among fowls, and to determine if it is advisable and feasible to officially control contagious diseases of fowls, and, if so, which diseases.

B. F. KAUPP.

THE AMERICAN VETERINARY MEDICAL ASSOCIATION.

The American Veterinary Medical Association recently held its fifty-eighth annual meeting in Denver, Colorado. This Association has four thousand members, mostly resident in the United States and Canada, but it also has members in nearly all parts of the world.

Graduates of reputable veterinary colleges are eligible to membership—it is not necessary that they be resident in North America. The initiation fee is $5, and the annual dues are $5 and include a subscription to the excellent official monthly journal of the Association, edited by Dr. J. R. Mohler, Chief of the Bureau of Animal Industry of the United States.

British veterinarians desirous of joining the Association can have all particulars upon application to Dr. N. S. Mayo, 4753, Ravenswood Avenue, Chicago, Ill., U.S.A. The President for this year is Professor Kinsley, of Kansas City, Mo.

ERRATA.—September and October Journals.

September—*Page* 337, line 4, ½-*drachm* should be ½-*ounce.*

October—*Page* 380, twelve lines from bottom of page, "On no account must grass or hay or *any food* be given," should read "On no account must grass or hay or any *dry* food be given."

NOTICES.

All communications should be addressed to 8, Henrietta Street, Covent Garden, London, W.C.2. Telephone: Gerrard 4646. Telegrams: "Baillière Rand, London."

Letters for the JOURNAL, literary contributions, reports, notices, books for review, exchanges, new instruments or materials, and all matter for publication (except advertisements) should be addressed to the Editor.

Manuscript—preferably typewritten—should be on one side only of paper, marked with full name of author.

Illustrations for reproduction should be in good black or dark brown ink on white paper or card.

Copy or advertisements should be in the hands of the publishers—Baillière, Tindall and Cox—not later than the 25th of the month, or if proof is required not later than 23rd.

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